

Clinical Mass Spectrometry

(Technology, Techniques, Miniaturization)

I. SAMPLE PREPARATION

1. Clinical MS Overview.
2. Types of Extraction.
3. Newer Methods.
4. Larger Molecules.
5. Dried Blood Spots.

II. ADVANCED SEPARATION TECHNIQUES

6. HPLC Systems.
7. TurboFlow and other LC.
8. Ultra-Performance Liquid Chromatography.
9. Capillary Electrophoresis Mass Spectrometry.
10. Differential Mobility Spectrometry.

III. IONIZATION TECHNIQUES FOR MS

11. Introduction – EI and API.
12. MALDI, DART, DESI, ASAP, DMBA.

IV. MASS ANALYZERS

13. Quadrupoles, Ion traps, Time-of-Flight (TOF), Orbitraps.
14. Hybrid Mass Analyzer Systems, Ion Mobility, FTMS.

V. IMAGING AND PROFILING BY MS

15. MALDI - Matrix Assisted Laser Desorption.
16. MALDI Biotyper.
17. DESI - Desorption Electrospray Ionization.
18. LESA - Liquid Extraction Surface Analysis.

VI. HIGH RESOLUTION MASS SPECTROMETRY

19. Fundamentals / Definitions.
20. Mass Basics.
21. Selectivity / Future Directions.

VII. MINIATURIZATION OF MASS SPECTROMETRY

- 22. Electrospray Ionization, GC/MS.
- 23. Chip-Based LC/MC.
- 24. Compact Mass Spectrometry.

VIII. BIOLOGICS AND FUTURE TECHNOLOGIES FOR THE CLINICAL LAB

- 25. Nano LC/MS.
- 26. Biologics Strategies.
- 27. Native Mass Spectrometry.

IX. FUTURE TECHNOLOGIES FOR CLINICAL ANALYSIS

- 28. Sample Preparation.
- 29. Liquid Chromatography.
- 30. EI / LC/MS.
- 31. Microbial ID.
- 32. Dried Blood / Dried Plasma Spots.